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NEW SPECIES, COMBINATIONS, AND NOTES IN
IPOMOPSIS (POLEMONIACEAE)

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ABSTRACT

Ipomopsis wendtii and *Ipomopsis aggregata* subsp. *carmenensis* are described as new from the Sierra del Jardín and Sierra del Carmen in northern Coahuila, Mexico, *Ipomopsis pringlei* is recognized as specifically distinct from *Ipomopsis macombii*, *Gilia calothyrsa* is considered synonymous with *I. macombii*, and *Ipomopsis effusa* is reported as new to the floras of California and the United States.

Key words: Polemoniaceae, *Ipomopsis*, *Gilia*, plant systematics.

INTRODUCTION

Studies of Polemoniaceae for the Chihuahuan Desert Region Flora have revealed two new taxa of *Ipomopsis* from northern Coahuila that are described herein. In addition, *Ipomopsis pringlei* from the Sierra Madre Occidental of northern Mexico, is distinguished from the more northern *I. macombii*, and an anomalous new record for the genus is reported for California.

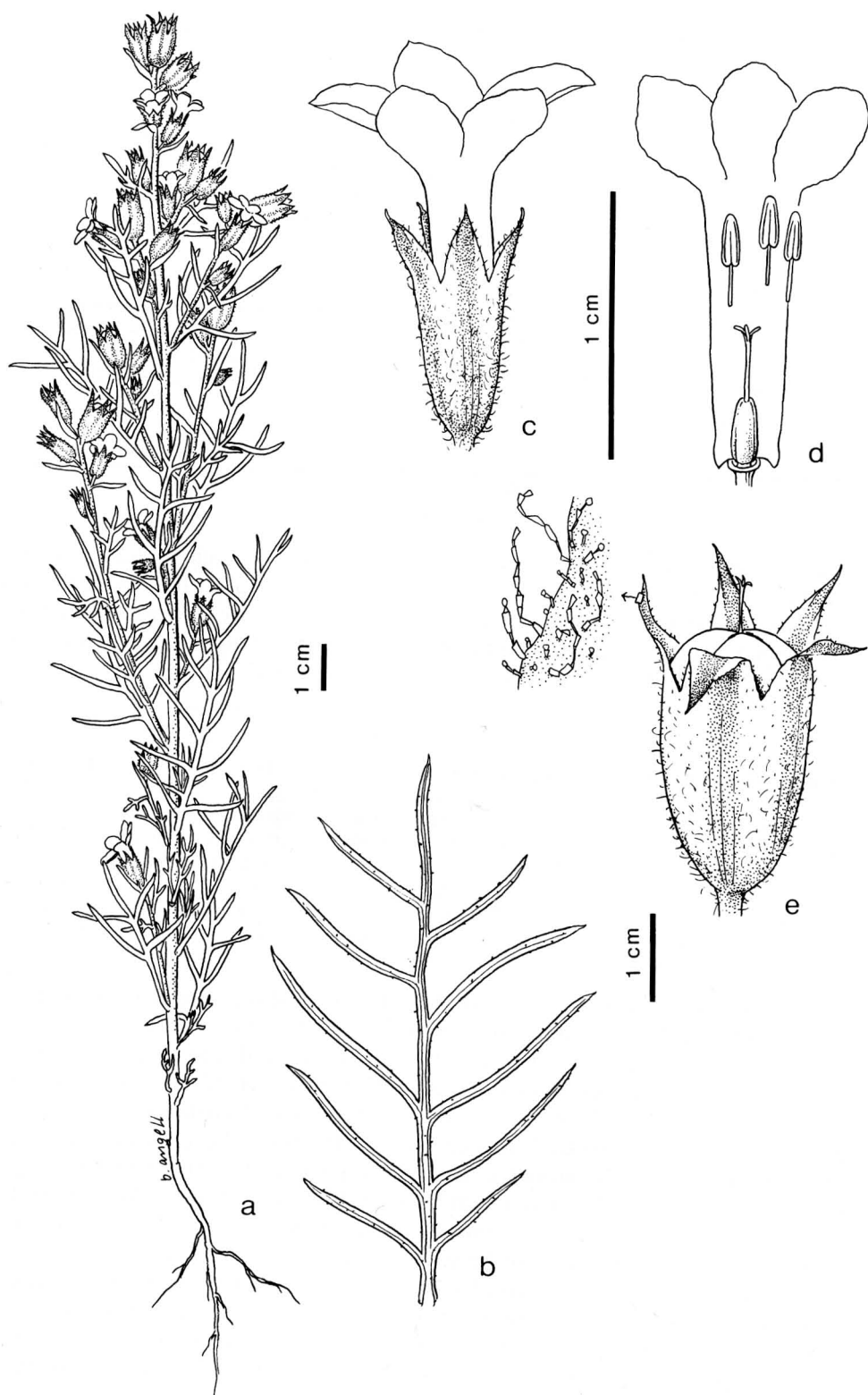
TAXONOMY

***Ipomopsis wendtii* Henrickson sp. nov.**

Fig. 1a–e

Herbae erectae 2–4 dm altae; pilis erectis crispatis saepe glandularibus 0.2–1.2 mm longis. Folia pinnatifida segmentis 3–7(–12) linearibus acutis mucronatis. Flores caulini solitarii ad nodos vel conferti ad ramos laterales racemoso-cymosos; calyces 8–12 mm longi pseudotubulis 4–5(–8) mm longis; corollae salverformes albo-roseolae tubulis rectis 8–11 mm longis, lobulis debile irregularibus late ovatis 3.5–5.2 mm longis 2–3.8 mm latis obtusis apiculatis; stamina in tubis superis inaequaliter inserta inclusa, antherae caeruleae; styli 2.5–3.7 mm longi inclusi glabri. Fructus 8–10 mm longus, loculi 3, unusquisque 8–10-sperma (Fig. 1).

Erect, biennial to perennial, woody-based herbs 2–4 dm tall; stems solitary or sparsely branched, pubescent-villous with white, erect to crinkled, often gland-tipped, uniseriate hairs 0.2–1.2 mm long. Leaves basal and cauline, ovate in outline, 2–5 dm long, asymmetrically pinnatifid into 3–7(–12), linear, acute, mucro-tipped divisions 5–25 mm long, 0.7–1.1 mm wide, divisions green, glabrous above, with scattered crinkled and gland-tipped trichomes beneath, basal rosulate leaves mostly absent by anthesis, upper leaves reduced in size and number of divisions, more glandular-puberulent beneath. Flowers cauline, solitary at nodes or rather crowded on lateral racemose-cymose branches; pedicels 1–4 mm long; subtending bracts leaflike, mostly linear, 5–12 mm long, 1 mm wide; calyx 5-lobed, cylindrical, 8–10(–12) mm long (to 13.5 mm long in fruit), lobes acuminate, weakly mucronate, 4–5(–7.5) mm long, strongly glandular villous, membranous pseudotube 4–5(–8) mm long; corollas salverform, slightly zygomorphic, 11–15 mm long, pale pink, tube cylindrical, straight, 8–11 mm long, lobes reflexed, ovate to



obovate-orbicular, 3.5–5.2 mm long, 2–3.8 mm wide, rounded to obtuse, apiculate at tip; stamens unevenly inserted in upper tube, anthers included, 1–1.2 mm long (2.5 mm long when wetted), blue, filaments 1–1.6 mm long; styles 2.5–3.7 mm long, included, glabrous. Fruit loculicidal, ovoid capsules 8–10 mm long, 4–5 mm wide; seeds 8–10 per locule, fusiform, angled, 2–3 mm long, mucilaginous when wetted.

Type.—MEXICO. COAHUILA: High western ridge of Sierra del Jardín, E of Rancho El Caballo, steep slopes of igneous rock, pine-oak woodland, 2250–2450 m, near 29°03'N lat, 102°37'W long, 16 Sep. 1972, F. Chiang, T. Wendt & M. C. Johnston 9348 (Holotype: LL; isotype: MEXU).

Ipomopsis wendtii is known from a single collection of three plants made by Thomas Wendt in the Sierra Jardín in northern Coahuila near the crest of the canyon east of Rancho El Caballo, in a canyon that continues eastward to Cañon de Boquillas above Rancho El Club. A later search by me for the plant found many rosettes but no mature plants.

The new species is very distinct from other *Ipomopsis* and can be distinguished by several characters including the large calyx in relation to the corolla size, the short, included style and included stamens, the disposition of flowers, solitary at mid-stem nodes, and somewhat aggregated on lateral branches. Within *Ipomopsis*, as recognized by Grant (1956), *I. wendtii* seems to fit best within section *Ipomopsis* which consists of erect, few-branched, rosulate perennials mostly with regular, long-tubed corollas with exserted or included styles. In other characters *I. wendtii* is very similar to *I. pinnata* (Cav.) V. Grant of section *Phloganthea* (Gray) V. Grant, having slightly zygomorphic corolla lobes and deeply included styles.

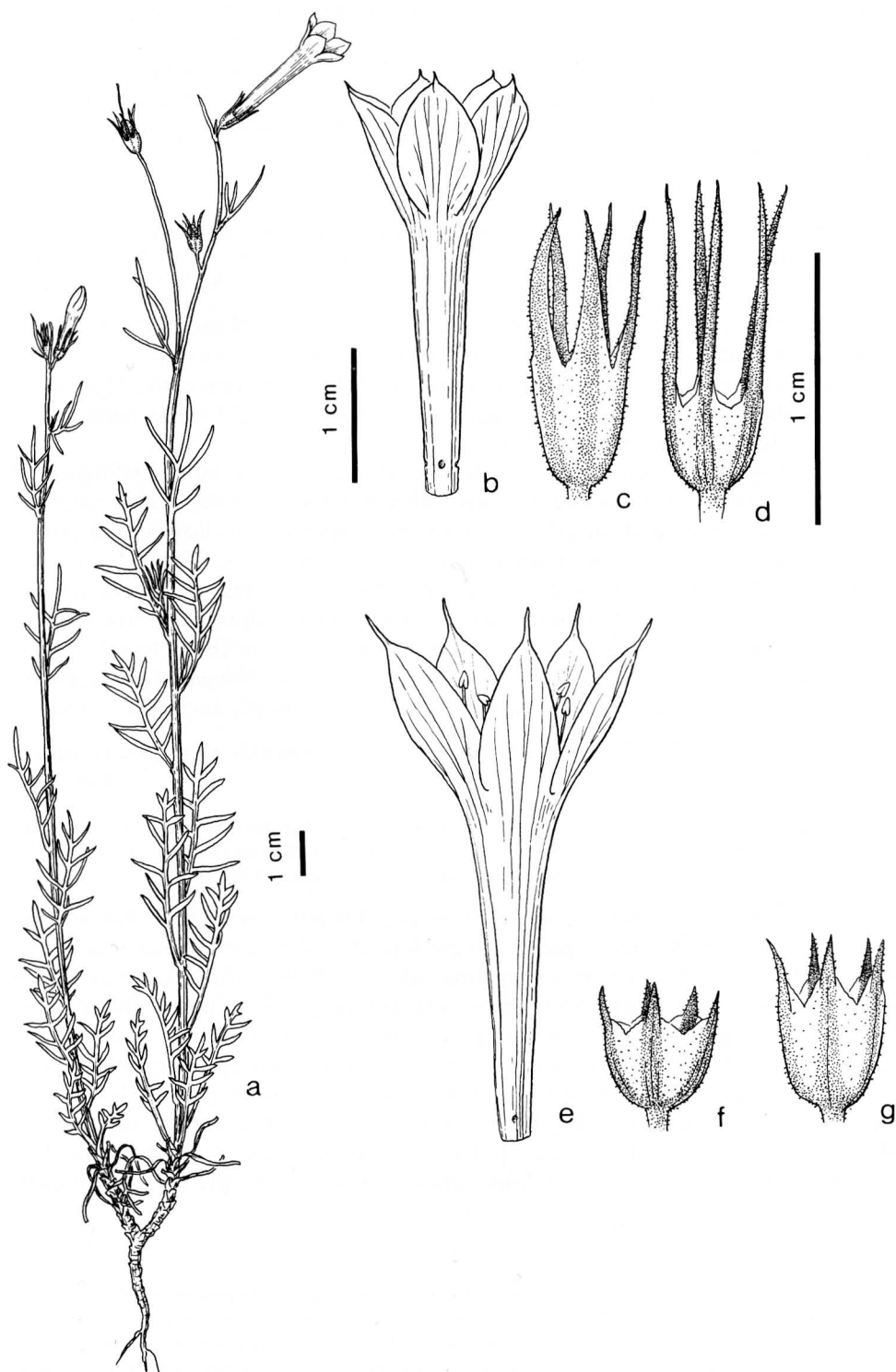
IPOMOPSIS AGGREGATA (Pursh) V. Grant subsp. **carmenensis** Henrickson, subsp. nov. Fig. 2a–d

A *I. aggregata* subsp. *formosissima* calycis lobis calycis tubis 2–3-plo (nec 1–2-plo) longioribus, corollae lobis ovatis obtuso-rotundatis, breviapiculatis (non ellipticis, non elliptico-lanceolatis, non longiattenuatis), corolla unicolorata (lobulis adaxialeter non maculatis) differt.

Perennial rosulate, rather delicate herbs 2–3 dm tall; stems erect, few–several from base, branched below, sparsely to moderately pubescent-villous with white, crinkled hairs 0.2–0.5(–1.5) mm long, less villous with more short, stipitate glands to 0.1 mm long in inflorescences. Leaves rosulate and cauline, pinnatifid; rosulate leaves withering by anthesis; cauline leaves oblong-ovate in outline, 2–6(–8.5) cm long, 1.3–2.5(–3) cm wide; divisions (3–)5–11(–19), alternating along rachis above a 2–20 mm long petiole-like base, (4.5–)9–15(–43) mm long, (0.4–)0.7–1.2(–2.9) mm wide, linear, narrowly elliptical, narrowly spatulate, mucronate, subterete to flat, entire, rarely serrate toothed, sparsely villous as stems, glabrate, rachis 0.6–1.3 mm wide, rarely to 2.7 mm wide when leaves only deeply incised-divided;

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Fig. 1. *Ipomopsis wendtii*.—a. Habit showing annual rootstock and disposition of leaves among pinnatifid leaves.—b. Pinnatifid leaf.—c. Flower showing large calyx and short corolla.—d. Internal view of flower showing ovary, style, style lobes, and deposition of three stamens on corolla.—e. calyx with developing fruit showing short style, insert shows uniseriate, multicellular hairs on a portion of a calyx lobe. (All from F. Chiang, T. Wendt & M. C. Johnston 9348 (LL). (Magnifications as indicated. Scale between c and d holds for c–e. Drawn by Bobbi Angell.)



upper cauline leaves reduced, with fewer, shorter, usually basal pinnae. Flowers borne in lax axillary and terminal 1–3-flowered cymes, subtended by 3-lobed, leaf-like bracts; pedicels (2–)10–50 mm long, short-stipitate glandular; calyces 9–14.5 mm long, stipitate glandular, calyx tube 3.5–4 mm long, lobes linear-filiform, (5–)6–11 mm long, 0.3–0.8 mm wide, subterete, mucronate-apiculate at tip. Corollas uniformly orange-red to red, 28–30 mm long, corolla tubes slightly ampliate, 20–23 mm long, 2.5–3 mm wide at base (pressed), to 3.2–4.3 mm wide at throat (pressed), with distinct invaginations along mid-petaline lines 2.5–4 mm above base; corolla lobes ovate, 7–8.5 mm long, 4.5–5.5 mm wide, obtuse-rounded, with a short apicule to 0.5 mm long at tip, spreading but not broadly spreading nor reflexed; stamens 5, anthers 1–1.3 mm long, yellow, exserted to mid petal lobes; filaments inserted in tube 3.5–4(–5) mm below corolla tube orifice, filaments 2.5–6 mm long, glabrous; styles 19–21 mm long, glabrous, style lobes borne among anthers. Capsules 8–11 mm long, about 4 mm wide; mature seeds unknown.

Type.—MEXICO. COAHUILA: Infrequent perennial on north, igneous slope of Picacho del Centinela, Del Carmen Mts., 6000 ft, 24 Aug. 1954, *B. H. Warnock 11609*. (Holotype: LL; isotypes: SRSC-2 sheets but dated 1953).

Additional collections.—MEXICO. COAHUILA: Sierra Maderas del Carmen, rare and local on steep, stabilized slopes on flanks of peak to north of Loomis [peak], in cut-over *Pinus strobiformis*-*Pseudotsuga* forest, 28 May 1975, *D. H. Riskind & T. F. Patterson 1831* (LL); Sierra Madera del Carmen: Upper end of Dos Canyon at road fork to Campo Uno; plants widely scattered; flowers bright red, 7500 ft, 26 Jun. 1976, *P. Fryxell 2725* (LL); Sierra Jardín, ca. 77 air mi se of Big Bend Nat'l Park basin in n Coah., n & e slopes of valley ca 7 km s of Rancho el Jardín, part of Ejido del Sur, with *Quercus*, *Ceanothus*, *Rubus*, *Arbutus*, *Tilia*, 2300 m, 1 Oct. 1980, *J. Henrickson & P. Bekey 18760* (TEX).

The new taxon is distinguished on the basis of a rather delicate, herbaceous habit, lax inflorescences with mostly solitary flowers on long pedicels, distinctive, long calyx lobes, orange-red corollas with ovate, shortly apiculate lobes and a series of five well developed invaginations at the base of the broad corolla tubes at the point where the corolla traces divide from 1 to 3 traces along the mid-petaline line, 2.5–4 mm above the corolla tube base (Fig. 2a, b). The new taxon is most similar to *I. aggregata* subsp. *formosissima* in disposition of its anthers, a character much emphasized by Grant and Wilken (1986) in their recent treatment of the *Ipomopsis aggregata* complex, and they would perhaps consider this rather restricted taxon to be a minor taxon within the species complex. However, while I have seen specimens from throughout the range of *I. aggregata* with one or another of these characters, the combination of characters represented in these

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Fig. 2. *Ipomopsis aggregata* subsp. *carmenensis* and subsp. *formosissima*.—a–d. *I. a.* subsp. *carmenensis*.—a. Habit showing lax habit of plant, remnants of rosulate leaves at base, leaves, and flowers.—b. Corolla showing lobes and small invaginations at tube base. Note shape of corolla lobes.—c. Calyx showing moderately long tube and long lobes. (a–c all from *P. C. Fryxell 2725*, LL).—d. Calyx of *D. H. Riskind & T. F. Patterson 1831*, (LL) showing much shorter tube and longer lobes).—e–g. *I. a.* subsp. *formosissima*.—e. Corolla showing long attenuate tips on more narrowly ovate corolla lobes and slight development of basal invaginations (*D. S. Correll 31594*, LL).—f–g. Calyces showing variation of tube and lobe lengths.—f. *D. S. Correll 31594* (LL) from Brewster Co. Tex.—g. *R. M. Stewart 915* (GH) from the Sierra del Diablo in southeastern Chihuahua. (Magnifications as indicated. Scale in c holds for both corollas, that in d holds for all calyces. Drawn by Bobbi Angell.)

collections stands in strong contrast with other collections of *I. aggregata* subsp. *formosissima* (heretofore known as =*I. a.* var. *texana*; see Wilken and Allard [1986]) in the Sierra Madera del Carmen. *Ipomopsis aggregata* subsp. *formosissima* is taller, more woody-stemmed, with flowers usually more aggregated in thyrses along upper stems, with calyx lobes shorter than to only slightly longer than calyx tubes (Fig. 2f-g) (3–4 mm long according to Grant and Wilken [1986]), with deeper red corollas with narrower, more elliptical-lanceolate, longer attenuate corolla lobes (Fig. 2e) that are more flaring and typically with reddish flecks on the inner surface, and the distinct invaginations near the relatively narrow corolla tube base are much more poorly developed at least in local populations.

Some characters present in the new subspecies occur in populations otherwise attributable to *I. aggregata* subsp. *formosissima*. In the Sierra Madre Oriental near Galeana, Nuevo León, México, some collections show tendencies to have some solitary flowers on long pedicels and calyces with lobes longer than tubes [i.e., *M. Taylor* 196 (TEX), *C. H. & M. T. Muller* 928 (TEX, GH), *G. B. Hinton* 18736 (TEX), *C. Cowan et al.* 5403 (TEX)] but these collections otherwise exhibit corolla characters typical of subsp. *formosissima*. The *C. H. & M. T. Muller* 928 collection, however, has relatively broad, ovate, though somewhat attenuate corolla lobes and considerably broader corolla tubes.

Broader corolla tubes also are noted in other scattered collections from within and near the southern Chihuahuan Desert including: *F. W. Pennel* 17526 (GH) from the Sierra de Catorce in San Luis Potosí; *C. A. Purpus* 4594 (GH) from the Sierra de Parras in southern Coahuila; *C. H. & M. T. Muller* 872 from near Pablillo, Nuevo León, and *L. R. Stanford et al.* 704 (GH) from near Miquihuana, Nuevo León.

Within the Sierra Maderas del Carmen these taxa appear somewhat ecologically separated. *Ipomopsis aggregata* subsp. *carmenensis* is apparently restricted to the upland rhyolite pine-oak-basswood woodlands and forest from 1800 to 2400 m while *I. aggregata* subsp. *formosissima* is more wide ranging occurring from lower chaparral-like scrub up to pine-oak woodlands from 1300 to 2000 m in both limestone and rhyolite areas.

***Ipomopsis pringlei* (Gray) Henrickson, comb. nov.**

Fig. 3a

Basionym: *Gilia pringlei* Gray, Proc. Amer. Acad. Arts 21:401. 1886, *Collomia pringlei* (Gray) Peter in Engler et Prantl, Nat. Pflanzenfamilien IV 3a:48. 1891; *Gilia macombii* Torr. ex Gray var. *pringlei* (Gray) Brand, Nat. Pflanzenfamilien 4(250):114. 1907. TYPE: MEXICO. CHIHUAHUA: Mountains near Chihuahua, Sep. 1886, *C. G. Pringle* 774; Holotype: GH; isotypes: GH! LL!

Erect, woody-stemmed rosette-forming perennials 2–8.5(–10) dm tall; stems 1–2 from base, erect, simple, or few (rarely much) branched above; internodes 5–25 mm long, canescent to puberulent with closely crisped-coiled hairs 0.1–0.2 mm long, more crisped villous with hairs to 0.7 mm long in inflorescence, green, stramineous or tinged with purple. Cauline leaves continuous to inflorescence, ovate in outline, 2–4 cm long, 1.3–3.5 cm wide, once pinnatifid into 3–7, filiform, subterete divisions (6–)8–38 mm long, 0.4–0.8 mm wide; leaf divisions mostly alternate along rachis, lowermost divisions usually shortest, terminal division usually longest, all subglabrous or sparsely puberulent, with hardened mucronate

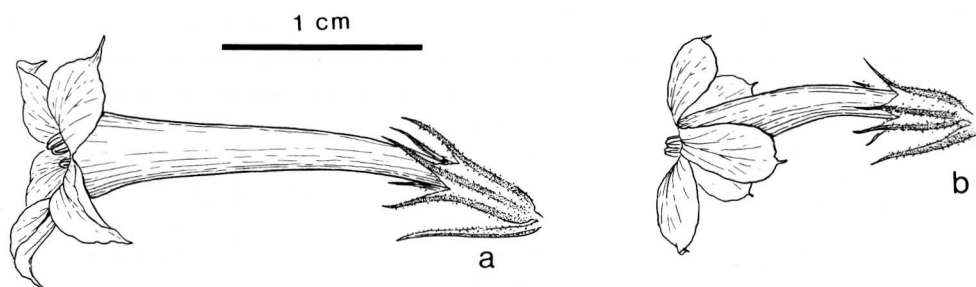


Fig. 3. *Ipomopsis pringlei* and *I. macombii*.—a. *I. pringlei*, mature flower showing subtending bract, calyx, and corolla with apiculate, spreading lobes. (C. H. Muller 3374, LL).—b. *I. macombii*, mature flower showing subtending bract, calyx, and corolla with slightly bent tube, strongly reflexed lobes that are more rounded-truncate beneath the terminal apicules. (S. S. White 4177, LL). (Both at same magnification as indicated. Drawn by Bobbi Angell.)

tips 0.5–0.8 mm long; upper leaves often with lateral divisions restricted to base or leaves simple, filiform. Flowers borne in pedunculate, secund panicles of proliferating, cymose clusters of 3–15 along distal one-fifth to one-half of stem; peduncles 2–7 mm long, bracteoles 2–8 mm long, simple, flattened at base, subterete, filiform, villous-ciliate above, mucronate; pedicels 0.5–2.2 mm long; peduncles, pedicels, bracts, calyces mostly loosely villous with crinkled 0.2–0.7 mm long or with stipitate glands 0.1–0.2 mm long; calyces broadly cylindrical, cylindrical-campanulate, 7.8–9 mm long at anthesis, tubes membranous, 4.5–6.5 mm long, white or tinged with purple, lobes 2.7–3 mm long, membranes not continuous in distal half, terminal apicule 0.4–1 mm long, midvein 0.3–0.4 mm long, green in lobe and often in distal half of tube; corollas lavender-blue, ascending, 30–34 mm long, tubes 21–26 mm long, straight or slightly downbent above calyx, (1–)1.5–2 mm broad at base, gradually ampliate, to 4–6 mm broad at throat (pressed), lobes oblong-obovate, (5.5–)6–7.5 mm long, 4–5 mm wide, with upper lobes slightly narrower, smaller, all obtuse rounded below a distinct acute-acuminate tip 0.6–2 mm long, all lobes flaring, slightly recurved at tips; anthers subequally inserted in distal corolla tube, usually 4 borne at corolla orifice, filaments (1.3–)2–3(–3.8) mm long, if one anther well included, its filament at least 1.3, usually 2–3 mm long; anthers 0.8–1.1 mm long, 0.5–0.6 mm wide, blue; styles 20–25 mm long, glabrous or with few short hairs at base, style lobes 0.6–1.1 mm long; ovary slightly puberulent distally. Fruit oblong-ovoid, 5.5–6.5 mm long, 3–4 mm wide, weakly puberulent distally, tan or with some purple-blue; seeds 3–4 per locule, angled, brownish, 1.5–2.7 mm long, 1–1.5 mm wide, mucilaginous when wetted.

When Grant (1956) redefined and expanded *Ipomopsis*, he transferred into *Ipomopsis* many species from *Gilia*, but not the above taxon. The taxon *pringeli* has been treated variously as a distinct species and most recently as a variety of taxon *macombii* under *Gilia* (see below). *Ipomopsis macombii* and *I. pringlei* share many similarities. Both are herbs developing from perennial rosettes. Their stems have a close vestiture of crisped-coiled hairs 0.1–0.2 mm long with longer crisped hairs developing in the inflorescences. Their cauline leaves are once pinatifid into 3–9, slender divisions. Flowers are bluish-lavender, produced in secund thyrses in moderately long-pedunculate, glomerate cymes. However, the

Table 1. Comparison of selected quantitative characteristics of *I. macombii* and *I. pringlei*.

Character	<i>Ipomopsis macombii</i>	<i>Ipomopsis pringlei</i>
Calyx total length	4.0–6.2(–7.2) mm	7.8–9 mm
Calyx tube length	2.5–4 mm	4.5–6.5 mm
Calyx lobe length	1.5–2.6 mm	2.7–3 mm
Corolla total length	17–21(–27) mm	30–44 mm
Corolla tube length	(12–)13–17(–22) mm	21–26 mm
Corolla throat width	2–4 mm (pressed)	4–6 mm (pressed)
Corolla lobe apicule length	0.4–0.7(–1.1) mm	0.6–2 mm
Filament length	1.0–1.3 mm	(1.3–)2–3(–3.8) mm
Style length	(7–)8–10(–14) mm	20–25 mm
Seeds per locule	1–2(–3)	3–4

corolla tubes of *I. macombii* tend to be sigmoidly curved, their corolla lobes are more reflexed with the upper two lobes conspicuously shorter than the lower three lobes, and they tend to be more truncated below a briefly apiculate tip (Fig. 3b). In contrast the corolla tubes of *I. pringlei* are straight, more amplate, and the corolla lobes are more flaring, sometimes becoming recurved, are more equal in size though the upper lobes are slightly reduced, and they are more rounded below a much more pronounced apiculate tip (Fig. 3a). Flowers of *I. pringlei* also are much larger; quantitative differences taken from dried flowers are listed in Table 1.

Known from oak scrub to apparently oak-pine woodlands from hills near the city of Chihuahua westward into Sierra Madre Occidental.

Representative collections.—MEXICO. CHIHUAHUA: *sin loc.*, B. M. Dobie 12a (TEX); w of Chihuahua, Oct. 1935, H. LeSueur 23 (TEX); Babicora and Culebra, 18 Aug. 1936, H. LeSueur s.n. (GH); Mcpio. Cuauhtemoc, 10 mi e San Antonio, 20 Sep. 1939, C. H. Muller 3374, (LL); 20 mi n Chihuahua city, 9 Oct. 1941, R. M. Stewart & I. M. Johnston 2135 (GH, LL); 1.4 mi se Alvaro Obregón on rt 28, 21 Aug. 1967, T. Stussey 1071 (LL, TEX); rd to Cumbres de Majalca, 14.1 mi w of Hwy 16, 20 Sep. 1984, M. Lavin & S. Sundberg 4908 (TEX).

IPOMOPSIS MACOMBII (Torr. ex Gray) V. Grant, Aliso 3:361, 1956 Fig. 3b

Type: *Gilia macombii* Torr. ex Gray, Proc. Amer. Acad. Arts 20:301. 1885.
TYPE: UNITED STATES. ARIZONA: Newberry, in Macomb's Expedition.

Collomia cavanillesiana Gray, Syn. Fl. N.A. 2(1):136. 1841. *non Collomia cavanillesiana* G. Don, Gen. Hist. 4(1): 247. 1837.
Gilia calothyrsa I. M. Johnston, J. Arnold Arbor. 24:95. 1943. *TYPE:* MEXICO. COAHUILA: Sierra de las Cruces, w of Santa Elena mines, 14 Aug. 1941, R. M. Stewart 1044 (Holotype: GH; isotype: LL).

Erect, woody-stemmed (biennial?) perennial herbs 1.5–7(–8) dm tall; stems (1–)several from base, solitary or branched above, slender; internodes 3–25 mm long, weakly to moderately villous with crisped, coiled, white matted hairs 0.1–0.2(–0.7) mm long, more hirtellous and stipitate glandular in inflorescences, green to tan. Basal leaves few, small, withered by anthesis; cauline leaves continuous into inflorescences, longer than internodes, spreading-ascending, ovate in outline, 13–50 mm long, 5–30 mm wide, once pinnatifid into 3–7(–9) subterete divisions (3–)5–20 mm long, 0.4–0.7(–1.0) mm wide, divisions opposite to alternate along rachis, lowermost divisions usually shortest, terminal and upper divisions usually

longest, all terminating with white mucronate tips 0.5–0.8 mm long, sparsely villous with crisped hairs throughout or along midvein on both surfaces or glabrous; upper stem leaves with few basal lobes or simple, filiform, more often stipitate-glandular. Flowers borne in pedunculate secund, proliferating cymose clusters of (1–)5–15 along distal half of stems; peduncles (1–)2–6(–17) mm long; bracts leaflike, simple or pinnatifid with 3–5 divisions; bracteoles filiform, flattened at base, subterete, mucro-tipped, 0.6–1.5 mm long; pedicels 0.5–1.5 mm long; upper stems, peduncles, pedicels, bracts, calyces sparsely to densely hirtellous and stipitate-glandular, sometimes villous with crisped hairs to 0.7 mm long; calyces broadly cylindrical-campanulate, 4.0–6.2(–7.2) mm long, tubes membranous, 2.5–4.0 mm long, white or often purple-maroon, lobes 1.5–2.6 mm long, green distally or along midribs, terminal aristae 0.4–1.2 mm long; corollas light blue-lavender to blue, rarely whitish-yellow, with lobes not speckled on inner surface, salverform 17–21(–27) mm long, tubes (12–)13–16.5(–22) mm long, 1–1.5(–2) mm in diam at base, ampliate to 2–4 mm wide at throat, straight or often decurved; lobes unequally deflexed, obovate, spatulate, 3.5–5.5(–7) mm long, 2.5–3.5(–5.6) mm wide, obtuse-truncate, usually with a distal acuminate apicule 0.4–0.7(–1.1) mm long at tip, at margins undulate-crisped; anthers unequally inserted in upper tube throat, usually 3–4 exerted, with filaments 1–1.3 mm long, one(–two) anther(s) inserted 2–3 mm inside corolla orifice with filament(s) 0.7–1(–1.7) mm long; anthers light blue, 0.7–1.3 mm long, 0.4–0.9 mm wide (dry); pollen grains yellow to light blue; styles (7–)8–10(–14) mm long, lobes 0.3–0.6 mm long, inserted to slightly exerted, glabrous or sparsely pubescent at base. Fruit oblong-ovate, (3–)4–5 mm long, 3–3.5 mm wide; seeds 1–2 per locule, angled, brown, 1.5–2.5 mm long, mucilaginous when wetted.

Ipomopsis macombii occurs in Pima, Pinal, Santa Cruz, and Cochise counties in southeastern Arizona, Hidalgo, Luna counties in southwestern New Mexico, south into northeastern Sonora, western and extreme eastern Chihuahua, extreme west central Coahuila and in central Nuevo León near Galeana (where corollas are generally smaller and nearly white in color). In 1943 I. M. Johnston described as new *Gilia calothyrsa* from extreme eastern Coahuila and adjacent Chihuahua. However, *G. calothyrsa* fits well into *I. macombii* having corolla tubes about 13 mm long, reflexed corolla lobes 5.5 mm long, 4 mm wide, calyces 6–6.5 mm long and styles 11 mm long. It differs only in having the lowermost stamen filaments 1.2–1.7 mm long, much longer than in typical *I. macombii* (0.7–1 mm); in this character it approaches *I. pringlei*. But I do not deem this difference sufficient to recognize the taxon as distinct from *I. macombii* particularly when *G. calothyrsa* is known from so few collections.

IPOMOPSIS EFFUSA NEW TO CALIFORNIA AND
THE UNITED STATES

Ipomopsis effusa (Gray) Moran [*Loeselia effusa* Gray, *Gilia effusa* (Gray) Macbride] has been considered endemic to the Sierra Juarez and the Sierra San Pedro Martir in northern Baja California (Wiggins 1980) where it is recorded from chaparral, gravelly flats (often with *Pinus quadrifolia*) and in montane meadows (with *Pinus jeffreyi*) from 875 to 2600 m (Moran 1977). Moran notes at its lower elevations it occurs scattered along streambeds. While compiling a floristic check-

list for a proposed transmission line right-of-way in southeastern Imperial County, California, I found two plants of *Ipomopsis effusa* (Henrickson 19590) growing at the terminus of Pinto Wash. The site is located just north of highway 93, about 3 miles north of the United States-Mexico border at sea level and consists of the open sandy fan where Pinto Wash terminates and the water soaks into the sandy substrate. The site occurs in a *Larrea* scrub community and common associates in the fan include *Psoralea argophylla*, *Encelia frutescens*, and *Hymenoclea salsola*. The wash has its origin in the upper elevations of the Sierra Juarez in Baja California and it is apparent that the seeds were washed down in floodwater early that spring as the margins of the streambed were littered with small pine cones presumably of *Pinus quadrifolia*. This represents the first record of this annual species in California and the United States (for a description of the plant see Moran [1977]). The plants appeared vigorous at the time of collection. The plants presumably would have successfully set seed in this locality. Repeated introductions would be expected whenever the stream flows. Vouchers are at CAL, RSA.

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LITERATURE CITED

- Grant, V. 1956. A synopsis of *Ipomopsis*. *Aliso* 3:351-362.
———, and D. H. Wilken. 1986. Taxonomy of the *Ipomopsis aggregata* group (Polemoniaceae). *Bot. Gaz. (Crawfordsville)* 147:359-371.
Johnston, I. M. 1943. New Phanerogams from Mexico V. *J. Arnold Arbor.* 24:90-98.
Moran, R. 1977. New or renovated Polemoniaceae from Baja California, Mexico (*Ipomopsis*, *Lilanthus*, *Navarretia*). *Madroño* 24:141-159.
Wiggins, I. L. 1980. *Flora of Baja California*. Stanford University Press, Stanford. 1025 p.
Wilken, D. H., and S. T. Allard. 1986. Intergradation among populations of the *Ipomopsis aggregata* complex in the Colorado Front Range. *Syst. Bot.* 11:1-13.